

JPRS 78144

22 May 1981

# Japan Report

No. 126

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## MILITARY

### JDA WANTS MORE THAN 45 P-3CS

Tokyo AVIATION REPORT-WEEKLY in English No 519, 29 Apr 81 pp 4-6

[Text]

The JDA wants to procure P-3C antisubmarine warfare (ASW) aircraft for the MSDF beyond the 45 aircraft fixed by the National Defense Council in December 1977 to replace its outmoded P-2J ASW aircraft.

This plan surfaced when Administrative Vice Minister of Defense Toru Hara and Defense Policy Bureau Director-General Akira Shiota briefed Prime Minister Zenko Suzuki on Japan's present defense capabilities in mid-April prior to Suzuki's visit to the United States in early May.

The JDA ordered eight P-3Cs in FY 1978 and 10 in FY 1980 as part of the planned 45-aircraft fleet. Although it had planned to order 12 of the remaining 27 aircraft in FY 1982 and 15 in FY 1984, it now intends to procure part or all of the 15 aircraft planned for FY 1984 together with the 12 aircraft in FY 1982. At the same time, the defense officials' explanation indicated JDA's plan to order more P-3Cs than the 45-aircraft limit in the future.

The defense officials told Suzuki that the agency hopes the FY 1982 budget would make it certain to accomplish equipment procurement targets of the FY 1980-84 Medium-Term Defense Program ahead of schedule as has been strongly requested by the U.S. Especially, they said, the JDA intends to hasten procurement of P-3Cs and destroyers for the MSDF and F-15J fighters for the ASDF in order to make up for a shortfall of Japan's antisubmarine and antiaircraft capabilities. They added that even if the FY 1980-84 program is completely implemented, Japan's defense capabilities would still be below the target stipulated in the 1976 National Defense Program Outline which establishes fundamental guidelines for the nation's future defense posture.

Comparing defense equipment funded until FY 1981 and equipment targets in the program outline, the officials also said there is a considerable gap in both quantity and quality.

The comparison of the outline targets and projected defense force strength after implementation of the FY 1981 budget follows, as tabulated by the JDA:

	National Defense Program Outline (A)	Defense Force Strength as Funded until FY 1981 (B)	Comparison (A-B)
<u>GSDF:</u>			
Basic units	13 divisions 6 composite brigades	13 divisions 6 composite brigades	Equipment is outmoded.

	National Defense Program Outline (A)	Defense Force Strength as Funded until FY 1981 (B)	Comparison (A-B)
<u>MSDF:</u>			
Destroyers	60 vessels	50 vessels	10 vessels
Submarines	16 vessels	14 vessels	2 vessels
Operational aircraft	220 aircraft	180 aircraft	40 aircraft
fixed-wing ASW aircraft	(100 aircraft)	(100 aircraft)	(0)
ASW helicopters	(120 aircraft)	(80 aircraft)	(40 aircraft)

	National Defense Program Outline (A)	Defense Force Strength as Funded until FY 1981 (B)	Comparison (A-B)
<u>ASDF:</u>			
Operational aircraft	430 aircraft	320 aircraft	110 aircraft
fighters	(350 aircraft)	(260 aircraft)	(90 aircraft)
others	(80 aircraft)	(60 aircraft)	(20 aircraft)

CSO: 4120/222

## MILITARY

### MARITIME FORCE SH-X SURVEY TEAM TO VISIT U.S.

Tokyo AVIATION REPORT-WEEKLY in English No 519, 29 Apr 81 pp 6-7

[Text]

The MSDF will send a three-man team for survey on the SH-X next-generation shipborne antisubmarine helicopter to the United States for 15 days from May 10 to collect data about the Sikorsky SH-60B Seahawk (LAMPS MK-III), a likely SH-X candidate, before deciding whether to request procurement of two SH-X green aircraft in FY 1982.

It originally planned to send the SH-X survey team to Britain as well because the Westland WG-34, now under development for the Royal Navy, has been seen as another candidate. Since the SH-60B is more promising than the WG-34 for imminent procurement, however, the MSDF has decided to limit the survey to the United States.

The team, led by Cdr. Sukegawa of the Fleet Air Force Command, will visit the Navy Department as well as Sikorsky to study mainly the SH-60B procurement price, which has a major bearing on the procurement decision.

The SH-X is designed as a replacement of the HSS-2B helicopter now under procurement. The FY 1980-84 Medium-Term Defense Program envisages procurement of two SH-X green aircraft for evaluation. The MSDF intends to mount ASW and avionics systems of the HSS-2B on the green aircraft to integrate a unique prototype of the SH-X. Thus, it has no plan to introduce the U.S. Navy LAMPS MK-III type of the SH-60B even if the model is selected. For future full-scale procurement, the service plans domestic license production based on the green aircraft. But no component installed in the LAMPS MK-III is designed for license production.

CSO: 4120/222

MILITARY

GROUND SELF DEFENSE FORCE TO PROCURE 203MM HSPS AFTER FY '90

Tokyo AVIATION REPORT-WEEKLY in English No 519, 29 Apr 81 p 7

[Text]

The GSDF is expected to procure U.S. Army M110A 203mm self-propelled howitzers (HSP) for artillery regiments of northern divisions after completing their deployment for district army artillery units in FY 1990.

Its procurement of the 203mm HSP through domestic license production is to start in FY 1981 with six units for training. The GSDF expects to request 13 units in FY 1982, 12 units in FY 1983 and as many in FY 1984 because the FY 1980-84 Medium-Term Defense Program (MTDP) envisages procurement of 43 203mm HSPs. Under the FY 1983-87 MTDP, it intends to procure 12 units a year. At the end of FY 1990 or the FY 1986-90 MTDP, the service expects to complete 203mm HSP procurement for district army artillery units.

As to domestic license production, the JDA is expected to select a prime contractor for assembly of the whole system after consultation with the United States ending in May or July. The gun barrel and engine will be imported from the United States through the Foreign Military Sales (FMS) channel. Japan Steel Works Ltd. has been named to manufacture the gun-barrel support.

CSO: 4170/222



## MILITARY

### NEW MEDIUM TERM DEFENSE PROGRAM EXPECTED

Tokyo JPE AVIATION REPORT-WEEKLY in English No 520, 6 May 81 p 5

[Text]

The Japanese government has decided to shortly begin drafting a new five-year (FYs 1983-87) Medium-Term Defense Program (MTDP) in order to improve Japan's self-defense capabilities. The decision was made last week at a session of the National Defense Council (NDC), presided over by Prime Minister Zenko Suzuki.

The NDC fell short of approving the Defense Agency's wish to fulfill the buildup target set by the 1976 Basic Defense Buildup Guideline through the implementation of the new MTDP primarily because of strong opposition from the financing authorities. But no member of the council voiced opposition to State Minister for Defense Joji Omura's statement that the government should make "as much effort as possible" to achieve such goals through implementation of the new MTDP, government sources say.

The JDA plans to finalize the new MTDP within a year and submit it to the NDC for approval.

CSO: 4120/223

## MILITARY

### DELAYED PATRIOT PROGRAM TO AFFECT SAM-X PLAN

Tokyo JPE AVIATION REPORT-WEEKLY in English No 520, 6 May 81 p 8

[Text]

The United States' release of the Raytheon Patriot surface-to-air missile for Japan's possible procurement is expected to be heldup until FY 1985 or after, affecting the JDA's plan to start procurement of new SAM-X antiaircraft missiles for the ASDF and GSDF in FY 1983, according to informed sources.

The Patriot, adopted by the U.S. Army, is the most promising candidate for the SAM-X to replace the ASDF's Nike-J and the GSDF's Basic Hawk. The two services sent a joint survey team to the United States in March to study mainly the Patriot.

If early introduction of the Patriot turns out to be difficult, the two services would have to consider other guided weapons as the SAM-X. In that case, the GSDF is expected to continue procurement of the Improved Hawk, while the ASDF is believed likely to lengthen the service life of the existing Nike-J and study MHI's proposal for the Nike Phoenix system, a mixture of the Nike and the Hughes Phoenix air-to-air missile for the U.S. Navy F-14 Tomcat.

The FY 1980-84 Medium-Term Defense Program calls on the ASDF and GSDF to prepare SAM-X procurement programs as early as possible. Although it does not specify the time for launching the SAM-X procurement, the two services want to start ordering in FY 1983. The ASDF has six Nike-J units and the GSDF four Basic Hawk units.

But the ASDF/GSDF SAM-X programs now face uncertainties because of the expected delay in the United States' release of the Patriot for foreign procurement.

CSO: 4120/223

## ECONOMIC

### DECREASE IN DOMESTIC AIR TRAFFIC REPORTED

Tokyo AVIATION REPORT-WEEKLY in English No 519, 29 Apr 81 p 1

[Text]

Three Japanese carriers' domestic passenger traffic in FY 1980 (April 1980-March 1981) slipped below their FY 1979 levels, according to their preliminary reports. Japan Air Lines' (JAL) passengers suffered a big decline of 8 percent from the previous fiscal year to 8,741,000. All Nippon Airways (ANA) and Toa Domestic Airlines (TDA) posted respective smaller falls of 2 and 1.2 percent. Passengers totaled 22,418,000 for ANA and 7,583,000 for TDA.

In March 1981 alone, JAL's passengers declined 6 percent from the same month of 1980 to 801,161 while ANA's passengers leveled off to 2,168,974. Passenger load factors averaged 62.5 percent for JAL and 71.1 percent for ANA.

In contrast, TDA's passengers scored a 5 percent increase in March to 694,927 with its passenger load factor standing at 74.6 percent. This good showing is attributable to the Airbus Industrie A300's service entry, opening of jet service on the Tokyo-Obihiro route and seasonally increased traffic demand especially on local (non-trunk) routes.

On local routes, ANA also saw its passengers rising one percent to 1,526,239.

On the Tokyo-Okinawa trunk route in the month, ANA scored a 7 percent rise to 154,630 passengers while JAL recorded a 3 percent drop to 160,937.

To break down ANA's passenger traffic in FY 1980, its passengers in the first half declined one percent from a year ago to 11,576,000 and those in the second half fell 6 percent to 10,842,000. Its passenger load factor fell from 67 percent in the first half to 64.5 percent in the second half.

## ECONOMIC

### NIHON KAMOTSU KOKU ASKS MOT FOR EARLY GO-AHEAD

Tokyo AVIATION REPORT-WEEKLY in English No 519, 29 Apr 81 pp 1-2

[Text]

Nihon Kamotsu Koku (Japan Air Cargo) has asked the Ministry of Transport (MOT) to issue a license for international freighter service as early as possible.

The request came when Chairman Shojiro Kikuchi and President Takeo Hori of the new air cargo firm visited Transport Minister Masajuro Shiokawa in the middle of April. Shiokawa gave a prudent answer that his ministry would decide whether to permit the new service after fully considering all.

Nihon Kamotsu Koku, based in Tokyo, was founded in September 1978 jointly by ANA and four shipping firms -- Nippon Yusen K.K., Yamashita-Shinnihon Steamship Co., Kawasaki Kisen Kaisha Ltd. and Mitsui O.S.K. Lines Ltd. -- with an original plan to start six weekly Tokyo-San Francisco-New York freighter flights in November 1978.

However, the MOT has so far refrained from authorizing the new service for reasons of a delay in construction of the permanent fuel pipeline to the New Tokyo International Airport (Narita) and possible adverse effects on Japan-U.S. civil aviation negotiations. Nihon Kamotsu Koku renewed its application for the new freighter service when the government last December decided to complete the pipeline by the end of FY 1983.

President Hart and other executives of the Firm told Shinkawa the company's penetration into international freighter service will bring about free competition in Japan's international cargo traffic market now monopolized by JAL and will increase Japan's overall share in the international air cargo market.

JAL has expressed strong opposition to the new service, warning Nihon Kametaru Koku's penetration would do nothing but result in fierce competition between the Japanese carriers. No increase is expected in Japan's share in the international air cargo market, it has contended.

CSO: 4120/222

ECONOMIC

## BOEING AGREES TO DELAY 747 DELIVERY TO ALL NIPPON AIRWAYS

Tokyo AVIATION REPORT-WEEKLY in English No 519, 29 Apr 81 pp 2-3

[Text]

Boeing Co. has agreed to delay delivery of the last two Boeing 747s to All Nippon Airways (ANA) without invoking the escalation clause in their contract. ANA expressed hope to put off acquisition of its 16th and 17th 747s in view of sluggish air traffic demand.

This is Boeing's great concession to ANA because a half-year delay in acquisition of two 747s could increase ANA's purchase costs by more than ¥1,000 million under the escalation clause which stipulates a price increase of 9 or 10 percent a year for a delay in acquisition. The 747 price is set at ¥14,000 million.

Boeing made the concession apparently in order to maintain good relations with ANA which has ordered 60 727s and 17 747s and plans to introduce 40 767s from 1983.

As the agreement was reached with Boeing, ANA has decided to delay acquisition of the 16th and 17th 747s by six months until August and September 1982, respectively. As to the 13th-15th Super Jumbos, ANA plans to take delivery of the 13th aircraft in May 1981 ahead of schedule and the 14th and 15th aircraft in December 1981 as originally scheduled.

CSO: 4120/222

## ECONOMIC

### SHIOKAWA PRESENTS BLUEPRINTS ON NEW KANSAI AIRPORT

Tokyo JPE AVIATION REPORT-WEEKLY in English No 520, 6 May 81 p 1

[Text]

The New Kansai Airport project reached a new stage last week as Transport Minister Masajuro Shiohawa visited the governors of Wakayama, Osaka and Hyogo Prefectures and presented blueprints worked out by the Ministry of Transport (MOT).

At the same time, Shiohawa requested the three governors to begin preliminary discussions between the state and three prefectures concerning the new airport.

Shiohawa presented only a summary of the three reports. They were blueprints on the new airport, an environmental assessment report and a redevelopment blueprint for the airport area. A full text of the reports will be presented to the local governments later.

According to the summary, the main features of the new airport remain unchanged from the report submitted earlier by the Civil Aviation Council, an advisory body to the MOT. Two 4,000-meter runways and one 3,400-meter crosswind runway will be constructed, and the new airport is capable of handling 260,000 take-offs and landings a year.

The government reports say that the airport will cover about 1,230 hectares of land, although the Civil Aviation Council's report suggests some 1,400 hectares. The budget for the airport has been increased from ¥1,600 billion to ¥1,830 billion.

As to the environmental assessment, the government report explains the effect the new airport will have in relation to noise, air pollution, marine life, landscape and other aspects. The report says that an average noise level of 70 WECPNL will prevail only in the sea area. Air

pollution is to be only anticipated in limited areas around the airport and they are within the government's environmental guidelines. Effects on the ocean are also limited to the airport area, and fishing operations will not be seriously damaged, the report says.

The MGT's airport construction plan has not yet gained the Cabinet's approval because of opposition from the Ministry of Finance,

CSO: 4120/223



## SCIENCE AND TECHNOLOGY

### CIVIL TRANSPORT LIKELY TO RECEIVE SUBSIDIES FOR Y-XX PROGRAM

Tokyo AVIATION REPORT-WEEKLY in English No 519, 29 Apr 81 p 3

[Text]

The Ministry of International Trade and Industry (MITI) is expected to give subsidies under the FY 1981 (April 1981-March 1982) budget for the Y-XX medium transport development program to Civil Transport Development Corp. (CTDC) which is the Japanese promoter of the Japan-Boeing-Italy Boeing 767 (Y-X) program.

MITI has so far delayed its decision on the subsidy receiver as any foreign partners for the Y-XX program have not yet been selected. It has feared that in case Airbus Industrie is selected as Japan's partner for the program, CTDC would turn out to be an inappropriate organization for the Y-XX program because of its contract for the 767 development and production project with Boeing which competes directly with Airbus Industrie in the world's aircraft market. If Boeing and Fokker Aircraft Co. are selected, CTDC would be able to engage in both of the Y-XX and 767 programs. Besides these foreign firms, McDonnell Douglas Corp. has also expressed hope to take part in the Y-XX program.

Indications at present are that the subsidies would have to be implemented in May with no foreign partners selected. The FY 1981 subsidies are for the Japanese industry's preliminary work on a Y-XX design. Therefore, CTDC could become the FY 1981 subsidy receiver irrespective of which foreign manufacturers would be named for the Y-XX program in future.

The FY 1981 Y-XX subsidies are ¥351 million, accounting for 75 percent of total ¥468 million planned for the program in this fiscal year. The total consists of ¥158 million for design work, ¥285 million for tests and ¥25 million for planning development.

## SCIENCE AND TECHNOLOGY

### SHIMADZU DELIVERS CENTRIFUGAL FORCE SIMULATOR TO JAPAN DEFENSE AGENCY

Tokyo AVIATION REPORT-WEEKLY in English No 519, 29 Apr 81 p 4

[Text]

Shimadzu Corp. has delivered Japan's first centrifugal force simulator for medical research and gravity training of aircraft pilots to the Aeromedicine Proving Unit of the Air Self-Defense Force (ASDF) Tachikawa.

The ¥400-million system revolves on an eight-meter arm with a 1,000-horsepower motor to produce a centrifugal force of up to nine Gs in a ball-type gondola at the tip of the arm. A trainee can experience a simulated flight in the gondola equipped with a control lever, a ladder pedal, a head up display and other components.

A remote surveillance and control system for the simulator is capable of controlling simulated flight conditions and processing data about a trainee under a centrifugal force with a mini-computer and other devices. Moves of the trainee can be monitored on television. The system can also provide a sudden change in the centrifugal force.

The centrifugal force simulator features better performance than the foreign-made system which has so far been used by the unit.

CSO: 4120/222

## SCIENCE AND TECHNOLOGY

### RFP SUBMITTED ON MT-X TO THREE MANUFACTURERS

Tokyo AVIATION REPORT-WEEKLY in English No 519, 29 Apr 81 pp 7-8

[Text]

The JDA's Technical R&D Institute (TR&DI) has submitted its request for proposal (RFP) on development of the MT-X next-generation intermediate trainer to Fuji Heavy Industries Ltd. (FHI), Kawasaki Heavy Industries Ltd. (KHI) and Mitsubishi Heavy Industries Ltd. (MHI). The MT-X program is to start in FY 1981.

The three aircraft manufacturers are expected to present their proposals to the TR&DI in mid-June. Then, the JDA will evaluate the proposals and select a prime contractor from them.

The RFP, submitted in mid-April, explained about the ASDF's requirements regarding performance, maintenance and costs of the MT-X, according to informed sources.

The MT-X is designed to replace the ASDF's T-33A and T-1A/B jet trainers. All of its airframe, avionics systems, engine and other components are planned for domestic development and production. As to the MT-X engine, the TR&DI has already been fabricating prototypes of the XF-3 turbofan engine, though any decision has not been made on whether to adopt the XF-3 for the MT-X.

The first MT-X trainers are expected to be ordered in FY 1986 for delivery in FY 1988. Procurement is estimated to total 180 to 200 aircraft, capturing a new substantial share in Japan's aircraft production.

Meanwhile, the ASDF is to set up a two-man MT-X office at the 2nd Development Division, Development Department, to coordinate the ASDF's requests on performance, costs and other aspects of the MT-X for submission to the TR&DI. The office will be headed by Col. Yuzo Otsubo of the division. Besides, one each in the Defense, Operations, Training, Logistics Planning, Procurement, Supply and other divisions concerned will take charge of the MT-X program.

## SCIENCE AND TECHNOLOGY

### TRAINING SYLLABUS HAS BEARING ON MT-X PROCUREMENT

Tokyo AVIATION REPORT-WEEKLY in English No 519, 29 Apr 81 pp 8-9

[Text]

The procurement scale of the ASDF MT-X intermediate jet trainer, to be developed from FY 1981, will depend on the final training program for F-15J pilots.

The present ASDF training syllabus stipulates a total of 395 training hours--70 hours with the T-3 primary trainer, 85 hours with the T-1 primary jet trainer, 100 hours with the T-33A basic trainer and 140 hours with the T-2 advanced trainer (80 hours for flight training and 60 hours for combat training). As the MT-X is designed to replace the T-1 and T-33A, the ASDF is considering shorter training hours with the MT-X than the current 185 hours with the two trainers.

Some quarters have suggested that the MT-X cover even part of the T-2 initial flight training hours with the overall T-2 training hours decreased. But this suggestion is expected to lead to increased training hours with the F-15DJ, boosting training costs. In order to avoid such a cost increase, other quarters have proposed to keep away from any sharp reduction in MT-X training hours from the current 185 hours for the T-1 and T-33A and increase the T-2 training hours for advanced students' transition to the F-15DJ. Thus, the proposal aims at reducing F-15DJ training hours. This is seen as the better training method in consideration of the F-15DJ's life-cycle costs.

It also has been proposed that a training area for the MT-X be expanded with T-2s transferred to the Air Defense Command for supersonic and combat training. This proposal is based on the British Royal Air Force training syllabus in which fighter pilots shift from Bulldog and Hawk trainers to the Jaguar strike fighter, the Tornado and the F-4. But the proposal has been rejected because of possible training imbalance and complicated support and maintenance work.

However the training syllabus is revised, at least 100 MT-Xs may be necessary for training missions. At present, T-1s and T-33As for pure training missions number about 100 aircraft for the 33rd and 35th training squadrons of the 1st Air Wing at Hamamatsu Air Base and the 1st and 2nd Flying training squadrons of the 13th Flying Training Wing at Ashiya Base. This training setup will be maintained after introduction of the MT-X as the number of trainees for fighter pilots will remain unchanged. It would be impossible to center MT-X training squadrons in a single air base with the training air space limited.

But names and rankings of the current T-1 and T-33A training wings and squadrons could be changed. For example, the 13th Flying Training Wing may conceivably be promoted the 9th Air Wing.

The ASDF has about 140 T-1s and T-33As for utility missions in addition to the about 100 aircraft for training missions. As the MT-X is also designed to undertake the utility missions, 100 more aircraft will be necessary for 13 to 14 squadrons. Thus, MT-X procurement is expected to total 200 aircraft.

CSO: 4120/222

## SCIENCE AND TECHNOLOGY

### BOEING EXECUTIVES MEET ON NEW AIRCRAFT DEVELOPMENT

Tokyo JPE AVIATION REPORT-WEEKLY in English No 520, 6 May 81 pp 2-3

[Text]

J. F. Sutter, Vice President Operations & Product Development, and other senior executives of Boeing Commercial Airplane Co. (BCAC) were in Japan in the latter part of April, explaining to Japanese industry and government circles concerned the basic outline of BCAC's 150-seat class new aircraft development concept.

During their stay in Tokyo, Sutter and his team met Yoshihiro Sakamoto (Director of MITI's Aircraft and Ordnance Section), Osamu Nagano (President, Engineering Research Association for Aero-jet Engines), Masaharu Iwama (Head of the XJB Office), Kaneichiro Imai (Managing Director, Aero-Engine & Space Operations Div., IHI), Teruaki Yamada (Executive Director, KHI) and Airo Takeda (Executive Director, MHI).

The Boeing team reportedly told the Japanese the new aircraft they have in mind will be designed to fill the gap between the 757-100 and the 737-300, and have accommodations for approximately 150 passengers. The wings and tail planes of the aircraft will be newly designed. Composite materials will be used as much as possible to reduce structural weight. It is estimated to have a cruising speed of Mach 0.78. The 757 cockpit will be utilized for the new aircraft. The cabin will have a single aisle and the passengers will be seated six abreast. Spacious overhead luggage compartments will be installed. It will be powered by two 20,000 - 25,000 lb class fuel-efficient, advanced technology turbofans of new design. Derivatives of existing engines are not being considered for the aircraft. Deliveries to airlines are planned after the middle of 1987.

The Boeing officials are also reported to have told the Japanese that United, Delta, American, Eastern, Trans World and Lufthansa are showing considerable interest in the new aircraft.

During the meeting at MITI, Sutter reportedly told ministry officials that Boeing desires to develop the aircraft in collaboration with the Japanese industry, and that it will welcome the participation of Fokker Aircraft. Sutter also told the MITI officials that the RJ500 turbofan now being developed by Rolls-Royce Limited and the three Japanese engine manufacturers, (IHI, KHI and MHI) is listed as one of the most promising candidates for the powerplant of the new aircraft.

Boeing executives told Japanese government and industry leaders that there would be a market for more than 3,000 130-150 seat short-medium range aircraft through the turn of the century, sources say.

CSO: 4120/223



## SCIENCE AND TECHNOLOGY

### FOREIGN MANUFACTURERS PROPOSING ENGINES FOR MTX

Tokyo JPE AVIATION REPORT-WEEKLY in English No 520, 6 May 81 pp 3-4

[Text]

The KHD-MTU-SNECMA-Turbomeca group and Garrett/Volvo Flygmotor group are reportedly intensifying their activities here for the sale of the Larzac O4 and the TFE-1042 engines, respectively, to the Japanese Defense Agency (JDA) for its MTX new trainer development program, local industry sources say.

Although the XF-3 turbofan now being developed by Ishikawajima-Harima Heavy Industries Co. (IHI) under contract from the Defense Agency's Technical R&D Institute still remains to be a most promising candidate for the MTX powerplant, there is a possibility that the JDA may give some considerations to the adoption of a foreign engine for the new trainer program, local industry fears.

The number of the MTX aircraft including those for utility missions are estimated to exceed 200, and consequently more than 400 engines are expected to be procured.

IHI completed the first of its XF3 series engines, -1, in March 1976 and the engine running time has now exceeded 600 hours and development is progressing on schedule. As far as engine performance and reliability are concerned, IHI is confident that it can develop a powerplant which will fully meet the MTX requirements.

However, the two foreign groups are reportedly offering their engines at much lower prices than the XF3. The Larzac O4 is operational and the development of the TFE-1042 has been almost completed, so both firms are able to sell their respective engines for approximately two-thirds of the expected price of the XF3, according to local industry sources. Although IHI is doing its best to keep down the engine development cost, it may not be easy for the Japanese



firm to compete effectively with the foreign manufacturers in terms of price. Increased political pressures from Europe and America for the import of these engines is also foreseen.

IHI, however, strongly maintains that the XF3 is the jet engine to be developed with pure Japanese technology, following the J3, and cancellation of the XF3 would lead to a complete setback of Japanese engine industry.

IHI will deliver five XF3 turbofans to the TR&DI, and the JDA hopes to adopt the engine for the MTX program on conditions that it proves to produce expected performance.

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## SCIENCE AND TECHNOLOGY

### KAWASAKI HEAVY INDUSTRIES GET FY '81 MISSILE ORDERS

Tokyo JPE AVIATION REPORT-WEEKLY in English No 520, 6 May 81 p 4

[Text]

Kawasaki Heavy Industries Ltd. (KHI) is expected to receive ¥7,000 million worth of missile orders in FY 1981 (April 1981-March 1982) from the Japanese Defense Agency (JDA), a sharp increase over the ¥3,000 million received in FY 1980.

This is because the JDA plans to triple orders for KHI Model 79 Ju-MAT antitank/antiship missiles from ¥1,700 million in FY 1980 to ¥5,100 million. The Ju-MAT missile, which was given service-entry certification in FY 1979, has been developed by KHI in cooperation with the JDA's Technical R&D Institute (TR&DI). The JDA also plans to continue to procure Model 64 antitank missiles from KHI in the current fiscal year.

KHI's missile orders in FY 1982 are likely to further increase to ¥10,000 million as its Chu-MAT medium-range antitank missile program with Nippon Electric Co. and the TR&DI is planned to shift to the engineering development stage.

Thus, KHI's missile division is to grow smartly over FY 1978 when its missile orders were only ¥2,000 million.

But KHI's missile-business gap with Mitsubishi Electric Corp. (MELCO) and Toshiba Corp. will still be wide. MELCO was awarded ¥30,000-million worth of orders mainly for license production of missiles in FY 1980, while Toshiba is to launch mass production of the Tan-SAM short-range surface-to-air missile.

To catch up with them, KHI will strive to obtain TR&DI's contract for development of a new portable surface-to-air missile. Although KHI has so far manufactured only antitank missiles, the portable SAM program could give it a door-opener to penetrating the surface-to-air missile market.

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## SCIENCE AND TECHNOLOGY

### AIR DEFENSE TO REQUEST PROPOSAL ON BADGE-X

Tokyo JPE AVIATION REPORT-WEEKLY in English No 520, 6 May 81 p 5

[Text]

The Air Self-Defense Force (ASDF) will soon draft itemized requirements of the BADGE-X new air defense system so that it will be able to request Japanese manufacturers for their proposal around June. Indications are that the ASDF will receive proposals from prospective manufacturers by the end of December 1981.

The ASDF began studies on a new system to replace the present BADGE in FY 1979. Actual research work was entrusted with the USAF Systems Command and MITRE Corporation, which have recently forwarded the ASDF a report on their research. The report is said to cover evaluation of the present system and systems studies on the future system.

It is expected to require five to six months for the ASDF to complete its examination of the proposals which the manufacturers are scheduled to submit toward the end of the year, and therefore the selection of its prime contractor is expected to be announced next spring. Construction of the BADGE-X is slated to begin in FY 1983.

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## SCIENCE AND TECHNOLOGY

### F-15J, P-3C DELIVERY SCHEDULE FOR SECOND CONTRACTS

Tokyo JPE AVIATION REPORT-WEEKLY in English No 520, 6 May 81 pp 6-7

[Text]

The Japanese Defense Agency will acquire airframes of 30 Air Self-Defense Force (ASDF) F-15J fighters and for 10 Maritime Self-Defense Force (MSDF) P-3C antisubmarine patrol aircraft for the second domestic license-production contracts from FY 1983 to 1984.

The second F-15J airframe contract worth ¥142,956 million was awarded to Mitsubishi Heavy Industries Ltd. (MHI) at the end of FY 1980 on March 31. At the same time, a ¥57,315,48-million contract for 60 F100-100 engines for the F-15Js was given to Ishikawajima-Harima Heavy Industries Co. (IHI). These engines will be delivered from FY 1982 to 1984. The first F-15J contracts in FY 1978 covered 15 airframes and 30 engines.

As to the second P-3C contracts concluded on the same day, Kawasaki Heavy Industries Ltd. (KHI) was awarded a ¥47,455-million contract for 10 airframes, IHI a ¥6,835-million contract for 40 T56-14 engines and Sumitomo Precision Products Co. a ¥2,134-million contract for 40 54H60-77 propellers. The engines and propellers will be delivered from FY 1982 to 1983. The first P-3C contract in FY 1978 covered five airframes, 12 engines and as many propellers.

Details of the F-15J and P-3C delivery schedule for the second contracts are as follows:

#### F-15J

##### -30 Airframes-

13 in FY 1983 (April 1983-March 1984)--two in April, and one each in May, June, July, August, September, October, November, December, 1983 and in January, February and March, 1984.

17 in FY 1984 (April 1984-March 1985)--two each in April, May, June, July, and August, and one each in September, October, November, December, 1984 and January, February and March, 1985.

(15 are being delivered for the first contract--one each in December 1981, January, February, March, April, May, June, July, August, September, October, November, December 1982, and January and February, 1983.)

-60 engines-

14 in FY 1982 (April 1982-March 1983) --four in October, two each in November, December, 1982 and January, February and March, 1983.

24 in FY 1983 (April 1983-March 1984)--two each in April, May, July, August, September, 1983 and March 1984, and four each in October, November, December, 1983 and January and February, 1984.

12 in FY 1984 (April 1984-March 1985)--two each in April, May, June, July, August and September. (30 are being delivered for the first contract--four in April, two each in May, June, and October, and three each in November and December 1981, two each in January, February, April, May, June, July and August, 1982.)

F-3C

-10 airframes-

Five in FY 1983 (April 1983-March 1984) --one each in July, September, November, January and March.

Five in FY 1984 (April 1984-March 1985)--one each in May, July, October, December, 1984 and March, 1985.

(Five are being delivered for the first contract--one each in May, July, November, December, 1982 and March 1983.)

-40 engines-

20 in FY 1982 (April 1982-March 1983)--four each in July, September, November, 1982 and January and March 1983.

20 in FY 1983 (April 1983-March 1984)--four each in May, July, October, December, 1983 and March, 1984.

(12 are being delivered for the first contract--four each in December 1981, February and March 1982.)

-40 propellers-

20 in FY 1982 (April 1982-March 1983)--four each in  
July, September, November, 1982 and January and  
March, 1983.

20 in FY 1983 (April 1983-March 1984)--four each in  
May, July, October, December, 1983 and March, 1984.  
(12 are being delivered for the first contract--four  
each in December 1981, February and March, 1982.)

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## SCIENCE AND TECHNOLOGY

### AIR DEFENSE, TR&DI TO IMPROVE ASM-1 ANTISHIP MISSILE

Tokyo JPE AVIATION REPORT-WEEKLY in English No 520, 6 May 81 pp 8-9

[Text]

The Air Self-Defense Force (ASDF) and the TR&DI are expected to start fabrication of an improved ASM-1 antiship missile for the F-1 support fighter in FY 1983 after the Ground Self-Defense Force (GSDF) kicks off engineering development of the XSSM-2 ground-launched antiship missile based on the ASM-1, according to informed sources.

The ASM-1 has been under procurement since FY 1980. The planned improved version will have a longer range, a bigger strike power and a more accurate guidance system with a jet engine replacing the current rocket engine, the sources said.

The GSDF XSSM-2 is said to feature similar performance with the improved ASM-1. Funding for the XSSM-2 program was ¥650 million in FY 1980 and ¥430 million in FY 1981. The program may be ready to shift to the engineering development stage in FY 1982, the sources said.

Under the circumstances, the ASDF apparently intends to watch the XSSM-2 program before launching fabrication of the improved ASM-1.

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## SCIENCE AND TECHNOLOGY

### BRIEFS

FJR710 ENGINE TESTS--High-altitude performance tests on Japan's 5.5-ton-thrust FJR710/600 turbofan engine started at Britain's National Gas Turbine Establishment (NGTE) in mid-April according to MITI's Agency of Industrial Science and Technology. The tests, lasting about two weeks, are designed to collect data on engine performance, ice formation limits, fast acceleration and deceleration, system functions and other aspects during simulated high-altitude flights in the NGTE's specialized test cells. The FJR710/600 is the FJR710 Phase II prototype. The FJR710/10, the Phase I (FYs '71-75) prototype, was also tested at the NGTE. [Text] [Tokyo AVIATION REPORT-WEEKLY in English No 519, 29 Apr 81 p 4]

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